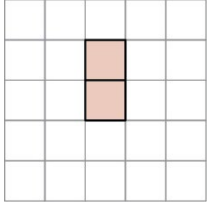
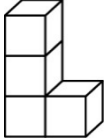
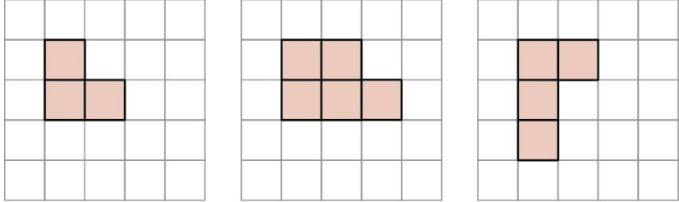
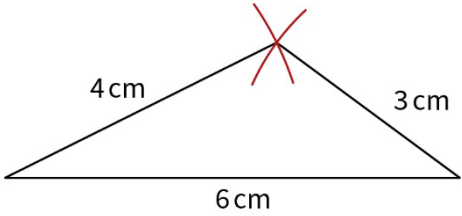
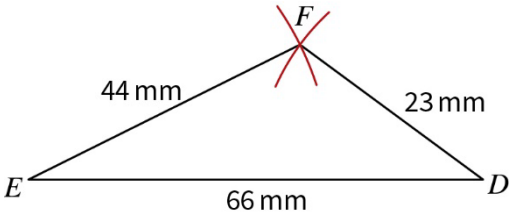
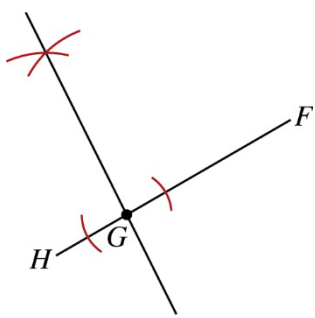
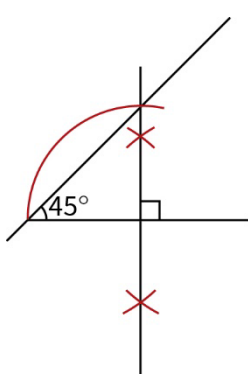


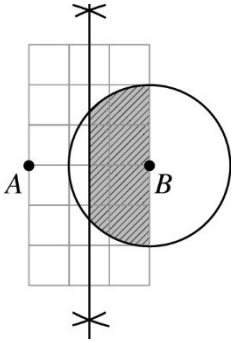
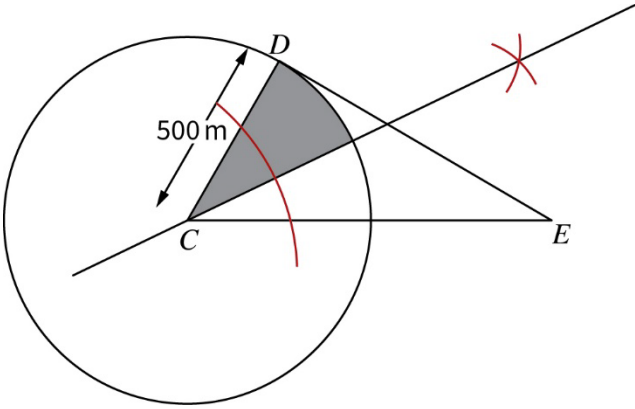
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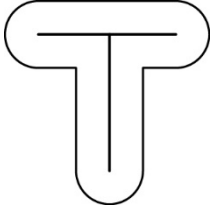
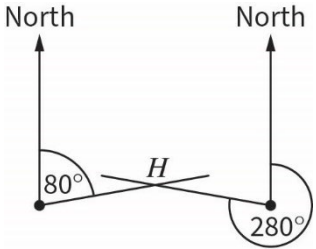
Chapter 24 Plans, elevations, constructions, bearings

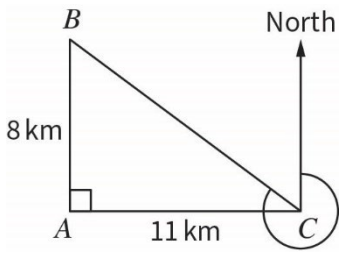
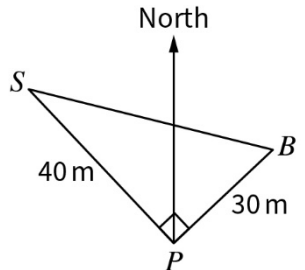
Question	Answer	Extra information	Marks
24.1 (a)		Correct diagram in any orientation	1
24.1 (b)		Correct 3D drawing of an 'L-shape' Fully correct diagram (may be facing left or right).	1 1
24.1 (c) (i)	12 vertices		1
24.1 (c) (ii)	18 edges		1
24.1 (c) (iii)	8 faces		1

Question	Answer	Extra information	Marks
24.2	 <p>Front elevation Side elevation Plan</p>	1 mark for each correct diagram; note the plan can be in any orientation as long as it's from above	1 1 1
24.3 (a)	B: The sum of the lengths of the shorter two sides must be greater than the longest side length		1
24.3 (b)		One side correctly drawn Second side Fully correct diagram (any orientation)	1 1 1
24.4		Each line (correct to 1 mm)	1 1 1

Question	Answer	Extra information	Marks
24.5		<p>Construction arcs both sides of G</p> <p>Second set of intersecting construction arcs either side of line segment (either above the line FH as shown, or below);</p> <p>Fully correct diagram.</p>	<p>1</p> <p>1</p> <p>1</p>
24.6		<p>Construction arcs either side of a line segment and perpendicular line drawn</p> <p>Arc intersecting perpendicular line</p> <p>Fully correct diagram with angle labelled.</p> <p>Full marks also given if instead of using the arc to make a triangle, you correctly bisected the 90° angle constructed.</p>	3

Question	Answer	Extra information	Marks
24.7		<p>Construction arcs either side of AB and perpendicular bisector drawn Circle centre B 3 cm radius Correctly shaded region.</p>	<p>1 1 1 1</p>
24.8		<p>Construction arc(s) intersecting CD and CE and pair of intersecting arcs in the space between D and E Angle bisector drawn Circle or arc centre C with radius of CD Correct shaded region.</p>	<p>1 1 1 1</p>

Question	Answer	Extra information	Marks
24.9	 <p>2.5 m = 250 cm $250 \div 125 = 2$ The locus needs to be 2 cm from the track</p>	Attempt to use the ratio to calculate the distance from the track (= 2 cm) Any correct straight line 2 cm from the <i>T</i> or any semicircle in correct position with 2 cm radius Fully correct locus. Total 3 marks	1 1 1
24.10		Either 080° bearing or 280° bearing drawn correctly Both bearings drawn correctly; Correct lines intersecting and labelled <i>H</i> .	1 1 1

Question	Answer	Extra information	Marks
24.11	 <p> $\tan BCA = \frac{8}{11}$ $BCA = \tan^{-1}\left(\frac{8}{11}\right) = 36^\circ$ Bearing of B from C is $270 + 36 = 306^\circ$ </p>	<p> $\tan BCA = \frac{8}{11}$ $36.027\dots^\circ$ $270 + BCA$ Correct answer to nearest degree </p>	<p>1 1 1 1</p>
24.12	 <p> $S = \text{swimmer}; B = \text{buoy}; P = \text{lookout post}$ $SB = \sqrt{30^2 + 40^2} = 50$ </p>	<p> Sketch showing a right-angled triangle Attempt to use Pythagoras $\sqrt{2500}$ Correct answer </p>	<p>1 1 1 1</p>

Question	Answer	Extra information	Marks
24.13	<p>Angle $ABC = 34^\circ$ (alternate angles)</p> <p>Base angles of isosceles triangle are equal so $BCA = \frac{180 - 34}{2} = 73^\circ$</p> <p>Bearing of A from C = $360 - 73 = 287^\circ$</p>	<p>Determining angle ABC</p> <p>Determining angle BCA</p> <p>287°</p>	<p>1</p> <p>1</p> <p>1</p>
24.14 (a)	$105 \leq p < 115$	<p>Correct lower bound</p> <p>Correct upper bound</p>	<p>1</p> <p>1</p>
24.14 (b)	$107.5 \leq p < 112.5$	<p>Correct lower bound</p> <p>Correct upper bound</p>	<p>1</p> <p>1</p>
24.15 (a)	$4.665 \leq x < 4.675$	<p>Correct lower bound</p> <p>Correct upper bound</p>	<p>1</p> <p>1</p>
24.15 (b)	$4500 \leq x < 5500$	<p>Correct lower bound</p> <p>Correct upper bound</p>	<p>1</p> <p>1</p>